

REMARKS/ARGUMENTS

Favorable reconsideration of the present application is respectfully requested.

Claims 1-18 remain active in the application. The claims have been amended to clarify that the detection of an abnormality in the hydraulic pressure control circuit is "based upon a determined made" within the predetermined time. Basis for this will be evident from the following discussion.

Applicants wish to thank Examiner Butler for the courtesy of an interview on October 27, 2004 at which time the outstanding Office action was discussed. In particular, Applicants pointed out the shortcomings of the applied prior art relative to the presently amended claims. No agreement was reached, pending the Examiner's further review of the applied prior art.

As was discussed during the interview, in accordance with a feature of the invention set forth in the claims, an abnormality detecting device or method for a vehicular hydraulic pressure control circuit determines the presence of an abnormality based upon a determination made within a predetermined time after an ignition switch is turned from ON to OFF, and during which the power supply to an electronic control unit is kept on. In the case where an electromagnetic control valve which generates hydraulic pressure corresponding to a signal supplied from an electronic control unit is provided with a hydraulic switch which is turned on when the hydraulic pressure generated by the electromagnetic control valve is equal to or higher than a predetermined value, a problem arises in determining whether a detected abnormality is present in the electromagnetic control valve or in the hydraulic switch, since either abnormality will produce a result whereby it is determined that the hydraulic switch is in the ON state in situations where the hydraulic pressure should not be present (see paragraph [0004]).

According to the present invention, this problem is addressed by keeping the power supply of the electronic control unit on for a predetermined time after the ignition switch is

turned from ON to OFF and making a determination during that predetermined time. An example of this is shown in Figure 7 wherein Step 6 tests whether the hydraulic pressure signal SW has been kept on for a predetermined time after it is determined that the ignition switch has been turned off (step S3). In such a case, if the hydraulic switch is not abnormal, the signal from the hydraulic switch will fall from high to low (Figure 6) within the predetermined time following the turning off of the ignition, as the hydraulic pressure falls to zero and so it can be determined that the abnormality is in an element other than the switch (step S8). On the other hand, if the fault instead lies in the hydraulic switch itself, its output signal will not fall from high to low, even though the hydraulic pressure is reduced to zero during the predetermined time following the turning off of the ignition switch (see paragraph [0024]) and so it can be determined that the abnormality is in the switch (step S7). It is therefore possible to reliably detect whether the abnormality is in the electromagnetic control valve or in the hydraulic switch based upon a determination made within the predetermined time after turning off the ignition switch (see paragraph [0007]). This is now more clearly set forth in the claims which recite that the detection of an abnormality within the predetermined time is "based upon a determination made" within the predetermined time.

Claims 1, 6, 7, 12, 13 and 18 were rejected under 35 U.S.C. §102 as being anticipated by any one of U.S. patents 4,973,855 (Kamimura et al.), 4,978,135 (Edahiro et al.) or 6,733,417 (Ajimoto). However, these rejections are respectfully traversed.

According to Kamimura et al., a failure in a fluid control system such as an active control suspension system can be divided into either the type which can sometimes be removed without service and so can be canceled when the vehicle ignition is turned off, and the type which can never be removed without service, and so must be recognized until the failure is removed (column 2, lines 41-57). More specifically, if a control failure is recognized, it is classified according to type A in which a warning is given but operation of

the system is maintained active or types B and C in which the suspension control is held fixed (column 6, lines 10-23). Further, the type B failures are classified according to either the B-1 type or the B-2 type, based upon whether the measures for the failure have to be continued until after the failure is removed or may be interrupted when the vehicle ignition switch is turned off (column 6, lines 23-29).

Thus, Kamimura et al. does not detect the occurrence of an abnormality in a hydraulic pressure control circuit *based upon a determination made* within a predetermined time after the ignition switch is turned off. Instead, it simply classifies the abnormalities, which are determined while the ignition switch is on, and includes a classification in which the detection is not erased when the ignition switch is turned off but instead is maintained during subsequent cycles of operation. There is no disclosure of a determination which is made after the ignition switch is turned off, and so the claims clearly define over this reference.

Edahiro et al. is directed to a vehicle active suspension system which remains partially active after the ignition switch has been turned off in order to maintain a level condition for the vehicle (see column 5, lines 58-63; paragraph bridging columns 6-7). To this end, the control valve 26 is opened at a predetermined time after the ignition switch is turned off (column 6, lines 1-3; step P9 in Figure 5). Additionally, the control valve is immediately opened in step P9 if a failure is detected at step P3 (column 7, lines 7-16). However, as is evident from Figure 5, the determination of step P3 is performed prior to the time that the ignition is turned off in step P5. Thus, the detection at step P3 that an abnormality has occurred in the hydraulic pressure control circuit of Edahiro et al. is not based upon a determination made within a predetermined time after the ignition switch is turned off, but is instead made while the ignition switch is on. The claims therefore also define over this reference.

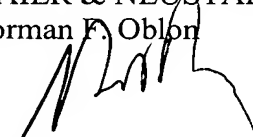
Ajimoto is directed to a continuously variable transmission (CVT). When the ignition switch is turned off (step S8), the line pressure is reduced in order to reduce the load of the hydraulic pump and minimize the risk of the engine stopping in a valve overlap position (see paragraph bridging columns 1-2). There is no description of an abnormality determination made within a predetermined time after the ignition switch is turned off. The amended claims therefore also define over this reference.

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Applicant therefore believes that the present application is in a condition for allowance and respectfully solicits an early notice of allowability.

Respectfully submitted,

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